NOAA Education Council Meeting

Date/Time: January 12, 2011 (1:00–4:00 pm)
Location: SSMC3, Room 14836
Dial-in: 866.901.0711
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Proposed future agenda Items:

AGENDA

1:00 Welcome/Opening Remarks

1:15 Department of Education STEM – Michael Lach *(informational*)
(*20 min presentation/20 min discussion)*

1:55 NSTA 2011 Update – Bob Hansen *(informational)*
(*5 min presentation/10 min discussion*)

2:10 Break

2:20 Office of National Marine Sanctuaries Best Practices Guide– Kate Thompson *(informational)*
(*15 min presentation/15 min discussion*)

2:50 Training the Next Generation of Scientists and Engineers – Sarah Hammond *(informational)*
(15 min presentation/15 min discussion)

3:20 Updates & Announcements

Upcoming Council Meetings:
February 9, 2011
March 16, 2011

Attendance

In person: Louisa Koch (LK), Marlene Kaplan (MK), Stephanie Bennett (SB), LuAnn Dahlman (LD), Karen Eason (KE), Ron Gird (RG), Jennifer Hammond (JH), Sarah Hammond (SH), Molly Harrison (MH), Kristina Kekuewa (KK), Michael Lach (ML), Luis Leandro (LL), Chelsea Lowes (CL), Michiko Martin (MM), Paulo Maurin (PM), Liz McMahon (LM), Jeannine Montgomery (JM), Maria Murray (MMu), Frank Niepold (FN), Bronwen Rice (BR).

On the phone: Nina Jackson (NJ), Paula Keener-Chavis (PKC), Sarah Schoedinger (SSc), Shannon Sprague (SSp), Carla Wallace (CW).

Announcements (LK)

- Michael Lach is the STEM point person for Dept. of Education and works very closely with Sec. Duncan. He was a high school biology and general science teacher, came to Washington as an Einstein fellow, was in the first class of Teach for America, and was the lead curriculum developer for environmental science. He has been very positive and interested in talking with us.
- The President is very interested in STEM. In September, PCAST published a hard-hitting report on STEM education. Their recommendations are being very closely heeded, especially by OMB and OSTP. We are connected to all of these efforts. You've all been responding to data calls related to this. The report had a paragraph on NOAA, which points to the NRC report. It underscores the importance of evaluation and working together. It's a snapshot, but we don't look particularly good in the paragraph. The subcommittee on education as part of the NSTC structure, at which I represent NOAA, has been the lead at trying to address the report. OMB and OSTP are looking aggressively at the report and will likely think about making significant changes. The Obama Administration has taken after the lead from the Bush Administration and tried to accelerate. When you have lots of small programs, it's easy to look like you have no national impact.
    - PKC: The NRC report is not one that will just sit on a shelf. It doesn't paint us in a very good light. Since there were members of the NRC committee that were positive and interested in working with us, is there a role they can play to help us with this dilemma?
    - LK: We are in comparatively good shape versus NASA. They would have liked the report to have been more positive, but the Academy review process is very strict. They put a significant effort into highlighting the positive aspects of the report.
- MK: Does he report to the Secretary?
    - LK: Yes. He came from Chicago. I think they knew each other from there.

Department of Education STEM – Michael Lach *(informational)*

An overview of DEd STEM efforts and how NOAA might fit in.

- ML: I would like to have more of a conversation rather than a presentation. I had a presentation planned, but threw it out right before coming here because I realized how little I know about what you all do.
    - I was a high school science teacher for about 8 or 9 years. I then did a fellowship for a year on the Hill learning about policy. After that, I worked for Chicago Public Schools, working for then CEO Arne Duncan leading the science programs. I later had math, high school curriculum, and teaching and learning added to my portfolio. I came out here with Arne. Now I serve as Special Assistant to the Secretary to coordinate our science education efforts.
    - Most of our money goes to state boards of education and districts for K-12. For higher education, most of the money goes to student loans and university administrators. Most people at universities in science don't think of DEd as helping them that much. They think more of science mission agencies.
    - We're a relatively new Cabinet agency. The word "education" does not appear in the Constitution. There is a lot of restriction on what we can do. Over 85% of the money we have goes out by formula.
- MM: Did I understand you that most of your money goes to states and districts and that money represents 5% of your budget?
    - No, that represents only 5% of the overall education budget in the country. Most of the action is at states and districts
- LK: I think you are the first one to serve a role of STEM coordinator.
- ML: We have four assurances that we think about for large scale reform, the tent poles that hold up what we're trying to do. 1) Higher standards and better assessments: With the realization that with NCLB, there were incentives for states to lower their standards. States were telling parents their kids were proficient in middle school, but they were really only likely to be proficient in high school at a 20% rate because the tests were not correctly calibrated. If you have higher standards, kids will meet them. Our current measure of achievement for those standards needs improvement. We've funded a program to develop a new, high quality form of assessments.
    - LM: Was any of that informed by assessment approaches in other countries?
    - ML: Yes. We awarded grants to two groups of states. There was a lot of work to study other types of standards and assessments. The standards these groups are using have been internationally benchmarked. Common core standards have been adopted by 43 states.
    - FN: The common saying is if it's not in the assessments, it doesn't get taught. The common core doesn't have science in it yet. Is there any work being done on science assessments before the standards are in place?
    - ML: There isn't really. There was internal DEd debate on assessments for science. It's difficult to do assessments on science when there aren't standards. We're excited about the Academies effort for science standards. We think it's better to take the time to do things right. We plan to fund some research and development on how to create new science assessments. Your statement is correct. We've included that in how to reform NCLB. NCLB does not have a sunset clause, so we have to implement it. We'd like to change it. There is still a focus on accountability. We've made some pretty dramatic suggestions for changes to the current accountability system, moving away from adequate yearly progress to a bigger focus on growth. We also have a bigger focus on incentives. States are allowed to include science in their accountability standards. We want to make sure science gets its play, but we're not sure this is the best time to include it. You should know this was a decision that went right to the White House.
    - FN: We're working on assessment development, specifically for weather and climate. Who should we contact at NSF?
    - ML: You should contact Joan Ferrini-Mundi at EHR and Steve Pruitt at Achieve. The current plan is to have a new framework for spring. Achieve will work to turn the framework into standards. That will start as soon as the framework is out. There is a commitment to make this a different process than how the common core worked. It will be a slower and more bottom-up approach. I believe they want to release performance descriptors.
- MK: We have participated by submitting comments on the NRC framework, especially for oceans and climate. We are very interested and active in seeing that these issues get incorporated. What does DEd view as the role of a science agency for education. We have a fair amount of investment that could support DEd. We are constantly fighting this and often encounter with OMB, who says that's the DEd's job. When you come out and when the President says he wants every scientist involved in education, it helps us. It would be helpful for the DEd to step forward and say we do see a valuable role for science mission agencies. During the last administration, the Education Secretary went to the Hill in front of the Science Committee and said: We're the Department of Education, and we do education. The work that the science agencies are doing in education is not that important.
    - ML: That's not how we feel. Figuring out how to make these interfaces and collaborations is not easy. In most school districts, you have a superintendant, people in charge of schools who are the ones that are really accountable, and a curriculum and instruction team who don't hold much accountability. There's a struggle to figure out who's really in charge. Different districts do it differently. Math and science are different than literacy instruction. Predominantly the support for science and math comes from places external from the building. Schools often need help and consultation from outside experts for math and science. This divide that exists between content experts and schools also exists at the federal government. We have tons of content experts. The interface is a constant negotiation to figure out authority and roles. For us to reach our goals, there is no way to get there without using scientists and engineers from outside.
- ML: Assurance 2: great teachers and leaders. This is about getting the right people to decide on these careers, better preparing them, and better placing them. It involves compensation, evaluation of teachers, professional development and support for teachers. It's about teachers and teaching, an important distinction. Our work around this includes funding teacher preparation programs and professional development. There's a lot of money for PD, but it's all formula. Assurance 3: Data and longitudinal tracking. This is about helping states gather data and do their analyses on: who's

teaching who, about what, and where. Assurance 4: Perpetually underperforming schools. In Chicago, we took the painful steps of school turn-around for such schools. This will be for the bottom 5% of schools and includes some staff turnover. These are the 4 big pillars (assurances) of what we're trying to do.

- PKC: Will you be able to track whether some of these students enter STEM careers?
    - ML: This is a state system that allows interoperability among states. It is not a national data system. There is some post-secondary tracking. Our research office does look for national trends, but we're aware of the federal government's role in education.
- FN: Biology is taken the most, then Chemistry, the rest are below 20%. Earth Sciences has had a hard time making it out of the bottom tier. One thing we've talked about is connecting to university presidents. How do we connect what is required for college and getting them to say you should take an Earth Science course to go to college.
    - ML: We don't get into individual course requirements. In Chicago, students are required to take either Earth or Environmental Science courses. It was very difficult to get external support for this. AGI did some Earth Science curricula, but we couldn't find PD for it. If there was a system of support, people would be more likely to do it. For many districts, a comprehensive system of support for Earth and Environmental Sciences could make them more amenable to including these courses.
- ML: I just passed out a very internal document. It is a little bit dated. There is a lot of initial data. On page 11: science and math improvement has to happen within the imbedded school system. We've posited these three buckets of STEM education focus. The first is about increasing capacity. There's a lot of people who don't understand science or its practice. The second is that motivation and inspiration is particularly important in STEM. Kids come early with curiosity and interest. That gets squeezed out of them by middle school. The same thing happens at school administrator levels. The third is enhancing partnerships and building networks. It's about partnerships with universities and schools and making these more explicit. There is a realization that we can't do this without people like you and other agencies. It's most helpful for us if you try to pick something small and go deep than shallow and broad. Figure out what is the right piece, especially for your authority and resources.
    - MK: We would agree with that. We find we'll be more successful with figuring out specific goals that we can report on. It would be great to get your endorsement and support.
    - LK: Teacher PD is an area we'd like to go deep in and supporting evaluation and assessment that this is valuable for encouraging women and minorities. Is that deep and appropriate?
    - ML: I would encourage you to be as specific as possible. We know from research on PD that a coherent and complete system of support is what makes PD successful. I could see if you tried to tackle 7th and 8th grade Earth and Environmental Science in a few areas and a few districts, the ones where you have capacity.
- PKC: The partnerships that you're talking about are significant components of what we offer for PD.
    - ML: Why can't you pick a few districts and start there?
    - PKC: I suppose we could do that. I work at the national level and have local people to make the local district connections.
    - ML: Are there ways you could identify a few superintendants at the state and district level? The push would be to make it part of the district and state core strategies. They often don't know what they're doing, and they don't have any money. The challenge for them is to determine if something really is core to what the district is doing. We had our Race to the Top initiative, with STEM as a big priority. We didn't see some of the traditional STEM people as part of the plans. Figure out who these people are and ask them how you could help them with their STEM plans strategically using resources you have.
- MM: In number 22 and 23 on page 12, do you consider us as a STEM-focused business? Could we be included in this incentive structure?
    - ML: The real go-to piece on this has emerged from the Change the Equation group. This is a CEO group that will advocate for STEM improvement at the state level. This was not the intent to include you, but maybe we should. Science mission agencies should be encouraged to be a part of this kind of work. NASA has state focused things that aren't built into Race for the Top because we weren't communicating.
    - MM: Whatever structure you are including to incentivize partnerships with corporations could include partnerships with science agencies and their facilities.
- MK: There's competitive pot of money at DEd. It now includes environmental literacy. We might want to partner with people at the state to go apply for some of this pot of money to give them some scientific understanding for their application.
    - ML: This is part of our blueprint section on a "well rounded education." We're proposing to Congress that a bunch of little programs get put into one bucket. I think most states wouldn't know what to do about making an environmental literacy program.
    - LK: Oregon and Maryland have such plans.
    - MK: NAAEE has the state contacts and where the states are in the process.
    - ML: I've seen that, but it's a bit siloed still. Environmental literacy overlaps a bit with science, and the alignment with state standards is unclear. If states don't know what to do about math, they don't know what to do about environmental literacy. There may be people in the state that know what to do, but they're not on the state Board of Ed. It would be helpful for you to tell me why Maryland and Oregon are so good and why other states are not as far along.
- ML: I'd be happy to meet again. It would be helpful to find out more about all of NOAA's programs. I want to help and find out what we can do to help you. I heard the message that science agencies should have a role. We can do this.
- LK: Thank you for coming. I found this very exciting and very validating. We have to keep working on building this bridge.

NSTA 2011 Update – Bob Hansen *(informational)*

An overview of NOAA presence at NSTA, including the booth and materials.

- LK: Will there be a CD this year?
    - BH: There will be a few CDs this year. There are some products that are very popular, but out of stock. Some are on DVD and could be handed out electronically. We'll have some climate change CDs. We're also hoping to get the new corals poster and bookmark and a new Taylor Morrison book. We are hoping to have him there to sign some of these. Some people from PSC and someone from ESRL will be there. We hope to promote websites through flat screens. I've sent out the badge requests.

Office of National Marine Sanctuaries Best Practices Guide– Kate Thompson *(informational)*

Kate was not available to present. Because we went over time with the first presentation, we will have this presentation at a later date.

Training the Next Generation of Scientists and Engineers – Sarah Hammond *(informational)*

An overview of the SeaPerch project based out of MIT Sea Grant.

- CL: Sarah is from MIT SG as the marine education coordinator. We invited her after a site visit. I found out about this project through our technology survey. She gave a brown-bag seminar yesterday. We had a little of an offline conversation after the brown bag. Her SeaPerch program is really applicable. We're looking to expand this to other NOAA education offices through partnerships.
- SH: Because we're MIT, we always try to have a technology spin.
- MK: Are you connected to the GLOBE program, where students collect environmental data?
    - SH: No, but I'd love to talk more about that.
    - FN: Are the data collections something that happens daily or sporadically? This could affect the comparability in a temporal capacity.
    - SH: You can address this in the sorting. We've made a comprehensive scaffolding for the data. You can select the types of data you want.
    - FN: Would you like to tap into the data sets we have?
    - SH: Absolutely. I have been trying to reach out to state organizations who collect these types of data.
- FN: Is there any way to be able to see where you're driving geographically?
    - SH: Yes, it has full-time GPS and compass setting.
- MM: In the Sanctuaries, we had a very active ROV program. We don't have the money to support this anymore in many of our sanctuaries. What kinds of partners are you looking for? We have trained education coordinators in this, but we don't have the funds.
    - SH: This would be a great partnership.
    - MM: Is it free for the teachers?
        - SH: Yes. A SeaPerch cost $70.
    - MM: We also did underwater Legos. Our middle school teachers were more comfortable because they were familiar with Legos.
- LK: Have you talked to the DOD curriculum coordinator?
- MM: We can also share our curriculum.
- NJ: We partner with a robotics group in Washington, DC. We have a contractor that supported this. I will give you his contact information to find out more about contacts in DC.
- LK: Are there geographic regions you are most interested in?
    - SH: I first want to identify partners that are ready to be facilitators. These groups may or may not have to have funds to support this.
- FN: I'd be interested in having a student log in and record it. I could imagine thousands of students around the world wanting to drive the same ROV at the same time.
    - SH: We have the ability to run it at night with an LED light. Now, you sign up for a time and log in at your time. You can view what others are doing at other times.
- RG: NWS will be at the Boy Scouts Jamboree. We could do this as a NOAA event jointly. The NOAA facilities in Norfolk area might be good partner. They have teacher workshops at Nauticus.
- PM: What data comes in from the ROV? I'm thinking of our push to get NOAA data into the classrooms and facilitate students gathering data. If we could develop a set of parameters for the Reef Explorer, this could help tremendously.
    - FN: The two I would imagine would be temp and salinity.
    - PM: We could gather NOAA resources to get the kind of data we're interested in.
    - MM: As a reminder, adding instrumentation adds cost.

Updates and Announcements

- LK: A number of you attended the Games and Simulations Summit. I went a little yesterday and was impressed with their program. A gentleman from New York presented a virtual world training.
- FN: Two things: We're working hard to bring the Climate Portal to an interagency context. Politics complicate this. The Roundtable on Sustainability at CNR will see this because NOAA went out ahead.
    - LK: They actually mention education in this. I spoke to Dr. Lubchenco about this, but there are some politics.
    - FN: UNESCO has just had a white paper laying forth the UN effort on climate education. Now Google also wants to talk to us about climate education.
- RG: In two weeks, WeatherFest is a sell-out at the annual AWS conference. Dr. Lubchenco will be there. Coastal America has their student conference coming up in mid February in Washington, DC. We'll circulate the material for this.

- CL: Alaska Sea Grant is hosting 2011 Communicating Ocean Science workshop at the Alaska Marine Science Symposium. Virginia Sea Grant will give a workshop in collaboration with the Chesapeake Bay NERR April 9 on conducting meaningful watershed experiences. New Jersey Sea Grant was just awarded an NSF Geoscience Education award, which will allow them to develop curriculum. The Bridge website is being revamped.
- MH: The fisheries book was just published. We'll be working with Jeannine and Bob to get this out. If you are thinking about doing a project like this, please talk to me. It is geared at middle school. We're working with College of Exploration to gather activities around the book's themes.
- JH: We're reviewing Teacher at Sea applicants. We're asking for berth space from scientists who want to work with teachers. If you have a scientist who wants a teacher to sail with them, please let us know. I'll send the request to the Council. We also sent out our 2010 year-end report which might help your scientists understand the program.
    - FN: We've heard our ship days have been reduced.
    - LMc: This seems to be the case. We will do what we can.
    - JH: Some scientists are using chartered vessels. As long as there's a NOAA scientist, we can send a teacher.
- PM: Next month there will be a U.S. coral reefs meeting in Washington, DC. I will have the fellows do a brown bag. Several of them are doing outreach in coastal areas. I am in the process of finalizing the NODE Ocean Acidification module. I'm also planning a related teacher PD in June in Florida.
- MM: Our Aquarius mission just got featured on Telemundo. I will send out this link. Our Foundation is hosting a fundraiser for Oceans for Life program Jan. 21. If we do get the funds, we are hoping to host in HI. We had a groundbreaking for our visitor center in Santa Cruz. We worked with Cal Academy on designing an exhibit on the Gulf of the Fairlawns. The film featuring this sanctuary was just unveiled with a film. On a sadder note, we are continuing cutbacks to half time for our field education staff, this will lead to some eliminations of outreach and education people. We are only doing the cutbacks with contractors right now. The Feds are the next phase of discussion.
- SB: Thank you. We're very excited to join the Council. We brought the Magic Planet and kiosk for the Games and Simulation Summit. We've developed a guidebook of data visualizations for teachers, facilitators, and docents who want to use them regardless of if they have a Planet. We're also releasing a Tsunami safety booklet geared to K-5. I will send this out as a pdf. We're working on an MOU with Hatfield to develop evaluation for spherical displays.
- MM: This is my last Ed Council meeting as a fellow. Thanks to the Office of Education for hosting me, and thanks to all of you for being so hospitable. I will be out for a couple of months and then returning to work in the Office of Education.
- LL: I've been working on the second version of the Blue Book. I appreciate your patients and input. It looks good and will be a huge improvement over last year. Please get any additions to me by the end of the day. I will keep you posted.
    - BH: Will the President announce the budget at the same time?
    - LK: He can't. We haven't gotten the passback yet.
- SSc: Today is the deadline for ELG applications. In order to give voting Council members an ability to provide input, we're proposing to make proposals viewable to you so that you can provide your comments on red flags for certain organizations or on your partnerships. We have heard your concerns. Tell us anything you think we should be aware of. We can bring this up in the review panels. Please get your comments to us by Feb. 9. Is this something you want to do? The maximum number of proposals is 85. We can provide a searchable pdf if you've had to write letters of support.
    - LK: These are all the proposals that made it through the first round and were cleared to submit full proposals.
    - FN: Will we be able to see the full proposals.
    - SSc: The full proposals will be accessible online. We'll also send a searchable spreadsheet.
    - MM, PKC, JH, and others support this proposal.
    - SSc: Over the next 5 business days, we'll be doing the administrative work. By Jan. 19th, we'll send an email from OEd.Grants@noaa.gov with the information you'll need.
    - PKC: Will the spreadsheet say if they've been funded through ELG before?
        - SSc: No, not in the spreadsheet, but this is supposed to be mentioned in the proposal.
    - AI: Is this a requirement?
        - SSc: No, it's an opportunity.
        - LK: If there are a few that mention NERRS, you could inform if it would be a fruitful proposal etc.
- PKC: We have copies of Volume One of education materials for the ship. We rolled out a pilot on-site workshop at the South Carolina Aquarium in December. We'll add additional sites over the year. Volume Two is in the works and focuses on STEM. Volume One is focused on the big picture of why we explore the ocean.
- AI: Questions like the one SSc raised at the last minute are a bit vague and need time to consider the process earlier.
    - SSc: Our tight timeline makes it difficult. We had this discussion last week. It's either this or nothing, and I didn't want to propose nothing.
    - LK: In the past, ELG has briefed the Council on the ranked proposals, but General Council holds us tightly to the ranking. This is in response to the last Council discussion around the ELG. I've asked the Grants Team to come up with an opportunity for input before the decision has been made on ranked projects rather than after. This is a work in progress. I'm committed to finding ways to make this better. I am happy that the grants coordination with NERRS educators is going well.
    - AI: We're getting ready for the February Education meeting. We're finalizing the activities for middle school curricula. We've hired a manager for the Wisconsin reserve that's been added.
        - LK: That's excellent. We need to make the connection for a Great Lakes B-WET.
- SSp: The B-WET Advisory Group is meeting in February. The Environmental Science Training Center in Oxford is conducting its first training for nonformal environmental educators next Thursday.
- BH: The NCSE exhibit is next week. Dr. Lubchenco is a plenary speaker. We have the soft opening of the Gateway Project on Feb. 4. The formal opening is the 9th. AAAS with the traveling SOS is mid February. We're still looking for docents. We'll be having training for this.